**Unit 2: Integers**

**Lecture Notes:**

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| **Main Ideas** | **Details** |
| **Integers** | * **Positive numbers, negative numbers, and zero** * **Arranged from smallest to largest on a number line** * **Negative numbers are to the left of zero** * **Positive numbers are to the right of zero** * **What happens when you move farther left?** * **What happens when you move farther right?**http://img.sparknotes.com/figures/5/50ca5e784bb7e4242910d5b8a571d103/number_line.gif |
| **Adding and Subtracting Integers** | * **AKA “Combining”** * **At this point, we need to think of addition and subtraction as one operation, called combining.** * **What happens when you combine +1 and -2?** |
| **Absolute Value** | * **Distance between zero and any positive or negative integer** * **Absolute value is always a positive number** * **Notation: │x│ (the number between two vertical bars)** * **Ex: │-7│= 7** * **Ex: │ 7│= 7** |
| **Adding Integers** | * **If the idea of “combining” integers is difficult to grasp, there are rules for adding and subtracting integers that you can follow.** * **1. When signs are alike, add the absolute values. The sign of the sum is the sign of the numbers added** * **Ex: (-4)+(-3)** * **2. When the signs are different, subtract the absolute values. The sign of the answer is the sign of the number with the larger absolute value.** * **Ex: (+4)+(-3)** |
| **Subtracting Integers** | * **1. Change the subtraction to addition** * **2. Change the sign of the second number** * **3. Follow the rules for adding integers** * **Ex: -3-8** |
| **Combining (both adding and subtracting) more than 2 integers** | * **1. Rewrite the problem so there are no double signs. Remove parentheses.** * **2. Do the problem from left to right OR combine the like terms** * **3. Solve by combining the final terms OR following the rules for adding and subtracting integers.** |
| **Multiplication and Division of Integers** | * **1. Multiply or divide by the absolute values** * **2. If the signs are alike, the answer is +(positive).** * **3. If the signs are different, the answer is – (negative).** * **Ex: -5(3)** * **Ex: -32/(-16)** |
| **Exponents** | * **Exponential expression= includes a base and an exponent** * **Ex: 25 (said “two to the fifth power”) means 2x2x2x2x2** * **Powers of negative numbers:**   + **If a negative number is raised to an even-numbered power, the result is a positive number.**     - **Ex: -22= +4**   + **If a negative number is raised to an odd-numbered power, the result is a positive number.**     - **Ex: -23= -8** |
| **Radicals** | * **The opposite of an exponential expression** * **If 32=9, then √9 =3 (said “the square root of nine”)** * **Radical sign = √** * **RULE: The square root of a negative number is NOT a real number!** * **Ex:** √100 |
| **Order of Operations** | * **P** * **E & R (exponents AND radicals)** * **MD (from left to right)** * **AS (from left to right)** * **Ex:** √100-[500 ÷(4-6)2] |